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ABSTRACT

The cooperative efforts of researchers and practitioners in building a model of essential teaching and classroom management skills as part of a process of educational reform are illustrated in this study by a local school administrator and university program directors and professors. The reform effort was part of the Arizona Career Ladder pilot program. The district within which the study was completed achieved great gains in restructuring and identifying needs concerning teacher performance characteristics and how they relate to student achievement. A model for profiling teacher characteristics and their relationship to student achievement was developed. The reliability and validity of the specially developed instrument, the Self-Perception Characteristics Survey, were established in close collaboration among school district and university personnel through a study involving 1,080 responses to the teacher self-description profile. Factor analysis of the 12 subsections of the instrument--setting goals and objectives, planning, making decisions, student assessment, self-assessment, time effectiveness, communicating, building and maintaining relationships, developing other staff, demonstrating commitment, improving instruction, and school effectiveness--indicated that in all cases, over 75% of the variance was accounted for by five or fewer factors. The results highlight the advantages of the collaboration between researchers and practitioners in the assessment and rebuilding of schools and in building and validating the connection between teacher characteristics and student achievement. An appendix contains 11 tables of factor loadings. (SLD)

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PROFESSORS & PRACTITIONERS COLLABORATING ON BUILDING A MODEL OF ESSENTIAL TEACHING & CLASSROOM MANAGEMENT SKILLS WITHIN A MAJOR REFORM PROGRAM:

Reliability & Validity Profiling Teacher Characteristics as Related to Student Achievement

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PROFESSORS & PRACTITIONERS COLLABORATING ON BUILDING A MODEL OF ESSENTIAL TEACHING & CLASSROOM MANAGEMENT SKILLS WITHIN A MAJOR REFORM PROGRAM

Introduction

Overview

In 1985, the Arizona Legislature established a five-year career ladder pilot program under the direction of the Joint Legislative Committee on Career Ladders (JLCCL). The purpose was to implement a program for rewarding teachers based on actual performance, rather than solely on years of experience and accumulated college credits. Research and evaluation of the program in the 14 presently participating districts is being conducted by the Center for Excellence in Education at NAU (Packard & Dereshiwsky, 1989/1990) in cooperation with researchers from the U of A, ASU and personnel within some of the pilot-test school systems. A number of doctoral dissertations are also focusing on various aspects of program implementation. This document is the result of a collaborative effort between university program directors and professors and a local school administrator who conducted research and completed a dissertation in a pilot-test reform district in southern Arizona.

Research and Evaluation Methodology

Data on the total project is collected and compiled annually for the purposes of policy development and legislative refinement. Formal reports are presented to the JLCCL, and results are also fed back to individual districts.

Concepts Crucial to Universal Program Reform

The researchers have developed a model of essential organizational components which must be functioning at healthy levels for effective reform. They consist of *focus*

factors, such as student achievement and teacher development & leadership. Critical *support factors* include such components as teacher & administrator evaluation; motivation; professional input & ownership; and program designs & structures. *Essential elements for educational improvement & success* are at the base of the model and include professional networks; state finance & funding; and legislative guidelines. These individual organizational components need to be assessed as to their current readiness to support an external teacher incentive program within the district. In doing so, each district must address the following issues: (1) Has there been adequate restructuring of all interrelated district components which impact teacher development & student learning? (2) Is teacher performance appropriately assessed? (3) Is the teacher evaluation system perceived as fair & objective?

Data Collection and Analysis of All Pilot-Test Districts

Program participants are asked to complete an annual survey which assesses their perceptions of the impact and appropriateness of the Career Ladder program in key organizational areas. They are also asked to identify program strengths and weaknesses in the form of open-ended questions. Several studies have examined program impact using standardized achievement test scores. Small-group interviews have probed participants' perceptions, attitudes and emotional reactions to the effects of the program upon their academic, interpersonal and organizational activities. In addition, a "profiling" procedure has been developed which diagrammatically shows the current "level of operational health" of each organizational component, thereby indicating overall district readiness for program implementation.

Summary of Overall Program Results

The following are the major findings resulting from five years of research:

1. School district organizations show extreme diversity with respect to current capabilities to implement such reform efforts successfully & efficiently. They differ dramatically in their needs for outside assistance in making improvements and capacity to demonstrate accountability for program goals.
2. A comprehensive restructuring of the total school district organization may be necessary in order to integrate the components which critically impact teacher development & related student achievement. Each district needs to be assessed & profiled to determine its current readiness level.
3. Successfully restructured districts have increased their impact on student learning potentials by more than 150% after CL implementation. Their impact on student achievement is over 225% greater than that of non-CL districts in the state.
4. A critical barrier to successful educational reform is the difficulty of "Transfer of Knowledge" into policy. That is, we need to know: "What level of thinking is used by educational & legislative decision makers in developing and implementing policy for improving schools?"
5. There are great concerns expressed by teachers about factors affecting morale within school systems. Perceptions of isolation & authoritarian control are especially evident. Negative influences operating within schools have affected organizational climate, psychological environment and internal communication procedures.

The following sections of the paper relate the results of a dissertation study by a local career ladder school district administrator, working along with the technical support of university professors. The district within which this study was completed has achieved great gains in re-structuring and identifying needs concerning teacher performance

characteristics and how they relate to student achievement. Specifically, a model for profiling teacher characteristics and their relationship to student achievement was developed. Reliability and validity of the specially developed instrumentation was established in close collaboration among school district and university personnel.

Reform in Profiling Teacher Performance Characteristics and Relating Them To Student Achievement

Overview of the Teacher Effectiveness Profile

For purposes of understanding the historical development of the study that is the focus of this paper, it is important to note the philosophical antecedents for the study. The authors will provide this in the overview.

Data and research has generally been unclear regarding the effectiveness of reform movements. For the most part, evaluations of educational reforms have been strong on evaluating "processes" and weak on evaluating "products."

The reform movements such as incentive-based pay plans now existing in school systems in 35 states across the country contend (in most cases) to be based on product-oriented evaluations. Product-oriented evaluation focuses on presumed accurate assessment of the effects of teacher performance and the outcomes predicated by that performance. Efforts to assess the effects of teacher performance using student achievement measures are currently gaining "widespread" attention. Although it is easy to understand why it would be desirable to evaluate teachers on the basis of their contribution to student achievement, it is not easy to determine what contributions, separate from other influences, impact what, or how much, students learn. This issue needs to be considered in not only incentive-based evaluations of teachers but other reforms intent on improving student achievement. Ways of dealing with this need to be examined.

The reality of school effectiveness is that it is possible only if we measurably close the gap between what we know and what we do. If reform is to be effective, and

evaluation of reform to be measured accurately, we must absolutely "back up" our thinking to the critical step of getting the first stable yardstick and identifying clearly that "yardstick" of teacher behavior as a catalyst for student performance. In other words, if we do not know what they are (behaviors), then we won't know what they are affecting.

The most profound problems plaguing the teaching profession will remain inadequately diagnosed and should be looked at cautiously as proposed "cures" (reforms) for the ills of education unless we know clearly what behaviors impact student achievement. Public education has attempted valiantly (although blindly) to respond to most new revolutionary concepts or calls for reform. However, which of these attempts and for what reasons have produced meaningful and lasting change is relatively unknown. Often this is because those individuals responsible either aren't sure or can't agree on what worked or what they were really striving for, and so the energy put into these initiatives contributes to our sense of frustration. Currently, there are state governments responding to public concern about education with a variety of initiatives and reform that come not from the education community and applicable research, but rather from political sources. The authors contend that efforts to reform education would be much more likely to succeed if they were based upon research-generated knowledge of teaching behavior (performance) linked to student achievement once and for all: the identification of a set of measurable behaviors that would be applicable to all teachers in all settings.

Process versus product evaluation is analogous to Robert Frost's poem "The Road Less Traveled":

> "Two roads diverged in the wood, and I took the one less travelled by. And that has made all the difference."

Historically, the road to identifying the stable yardstick has been "the one less travelled by." As the rightful outcry of educational reform continues, educators and researchers need to begin beating a path along this road to establish a unity of focus from which future innovations can draw.

In order to begin linking teacher performance to student achievement, there must be a consistent procedure for identification of those individual sub-skill areas which are most critical for successful instruction and learning. Numerous attitudinal and behavioral assessment surveys currently exist and are in wide adoption. However, they may not be usable by individual school districts in their present form, due to two key reasons. For one thing, they may not identify the particular combination of skills which are most relevant to a given educational setting. That is, certain crucial areas may be redundant, extraneous, and/or entirely missing from the instrument. Secondly, the survey may simply be too lengthy. Already scarce time and effort may be saved by pinpointing that subset of questions which, in fact, defines each area of designated professional skill activity.

The Study

This study constitutes a reliability and validity assessment of an instrument entitled "The Self-Perception Characteristics Survey" (Fimbres, 1989). The original scale was adapted from the Educational Administrator Effectiveness Profile" (EAEP) developed by Human Synergistics, Inc. through a grant provided by the Danforth Foundation.

Reliability Estimates

As shown below, reliability estimates for the eleven, ten-item scales were quite consistent as originally conceptualized for educational administrators receiving the EAEP:

Setting Goals and Objectives	.79
Planning	.81
Making Decisions and Solving Problems	.85
Managing Business and Fiscal Affairs	.82
Assessing Progress	.86
Delegating Responsibilities	.77
Communicating	.80
Building and Maintaining Relationships	.71
Demonstrating Professional Commitment	.83
Improving Instruction	.85
Developing Staff	.81

Instrumentation Content and Sub-Scale

However, the researchers reformulated the content and/or sub-scale titles into the areas shown on the following tables. The original scales were grouped into four areas that relate to the conceptual requirements of the Career Ladder Plan in Sunnyside District, Tucson, Arizona. For example, the sub-scales of Setting Goals and Objectives, Planning and Making Decisions and Solving Problems were placed in a category called "Projecting." This category relates to the goal-setting and action-planning requirements of the Career Ladder Project Model. The questions for each sub-scale in some instances were slightly re-phrased to indicate "teacher" rather than "administrator" or otherwise make it more appropriate to the teacher function rather than the administrator function.

The second major category related to the Career Ladder is termed "Managing." This includes questions related to the management of students (student assessment), self-assessment and the management of time. Questions were adapted from the effectiveness profile with additional questions on time effectiveness from the Time Management Profile by Dr. Merrill Douglas and Dr. Larry Baker, 1984.

The third category called "Connecting" utilizes the original sub-scales of Communicating, Building and Maintaining Relationships, and Developing Other Staff. The questions for these sub-scales are strongly related to the Teaming, Mentoring and Leadership/Empowerment concepts of the Ladder Model.

Fourth, the area of "Professionalizing" includes the original sub-scales and questions of Demonstrating Commitment and Improving Instruction. An additional sub-scale of "School Effectiveness" with questions derived from the Effective Schools research and the correlates that have been identified by Ronald Edmonds was created by the researchers.

The new categories and their sub-scales are listed below:

I. Projecting
   A. Setting Goals and Objectives
      (1,2,3,31,32,33,61,62,91,92)
   B. Planning
      (4,5,34,35,63,64,65,93,94,95)
   C. Making Decisions and Solving Problems
      (6,7,8,36,37,38,66,67,96,97)

II. A. Student Assessment
      (12,13,14,42,43,44,72,73,102,103)
   B. Self Assessment
      (9,10,39,40,68,69,70,98,99,100)
   C. Time Effectiveness
      (15,16,45,46,74,75,76,104,105,106)

III. Connecting
   A. Communicating
      (17,18,19,47,48,49,77,78,107,108)
   B. Building and Maintaining Relationships
      (20,21,50,51,79,80,81,109,110,111)
   C. Developing Other Staff
      (28,29,30,58,59,60,88,89,118,119)

IV. Professionalizing
   A. Demonstrating Commitment
      (23,24,25,53,54,55,83,84,113,114)
   B. Improving Instruction
      (26,27,56,57,85,86,87,115,116,117)
   C. School Effectiveness
      (11,22,41,52,71,82,90,101,112,120)

The Educational Administrators Effectiveness Profile

Whereas the Educational Administrators Effectiveness Profile was developed with a sample of administrators and "others" who participated in programs to improve their effectiveness, the adapted instrument in this study was directed at teachers who were participants and non-participants on the Career Ladder Project. The difference in the two groups was participation on the ladder. Teachers who participated (depending on their respective levels) performed the requirements outlined in the Focus Areas.

The questions were adapted and reformulated to address the following career ladder plan concepts depicted in this sample of a graduated responsibility flow chart by teacher level:

FOCUS AREAS

Level I	Level II	Level III	Level IV
Classroom Performance	Classroom Performance	Classroom Performance	Classroom Performance
Staff Development	*Student Progress	*Student Progress	*Student Progress
Protege of Mentor	Staff Development	Staff Development	Staff Development
	Teaming Relationship	Mentor Teacher	District Resource
		Teacher/ School Project	Central Office Project
Submits Portfolio	Submits Portfolio	Submits Portfolio	Submits Portfolio

* The elements comprising the student progress component are 1) developing a plan of action, 2) documenting in measurable form the results, and 3) analyzing the plan and its results.

The above focus areas list general requirements for teachers who choose to participate. These "requirements" are based on the premise that teacher behavioral and attitudinal change is going to occur when one gets that "special blend" between the teacher's willingness to change and the right "cues" from the organization. In the above model the teacher chooses to participate and the requirements become the cues from the organization. Teacher change (the emergence of leadership) is an organizational phenomenon that occurs when one combines individuals with institutional requirements via a consistent and measurable model of behavior.

Thus, evidence of the above activities is submitted in the form of a portfolio. It is then evaluated and scored for placement or maintenance at a specific level and step. As one can see, the three element plan for documenting student progress is a requirement at Levels II, III, and IV. What is needed is a way to determine which "cues" are most effective when associated with teacher willingness and its relative impact on student academic progress.

Teacher Sample

The sample of teachers who completed the self-description scale was dichotomized into "High Profile" vs. "Low Profile." This categorization was necessary in order to include "teacher profile" as a blocking or grouping factor in the set of analyses (Aaker and Day, 1986). Dichotomization of the high versus low profile construct was accomplished in the following manner. The entire set of (1,080) responses to the teacher self-description profile items was sorted and summarized using the SPSSx (Statistical Package for the Social Sciences, 1988) "frequencies" commands. As a result, the number and percentage of subjects choosing each of the seven response categories could be readily identified. One can thereby determine the polarization of responses; that is, natural "breaks" in selection of extreme choices. By identifying where these breaks occur, the researcher was able to determine how to dichotomize the seven options into "High" vs. "Low" profile. In other words, the researcher needed to decide whether the break should occur between the more centrally stated "sometimes/often," or whether only the more extreme "seldom" vs. "almost always," should constitute the boundaries.

There is considerable precedent in categorical data analysis for sub-grouping responses based on such quantitative "breaks." Another area where polarization or differences in attitudes are used to sub-group is in item analysis (Aaker and Day, 1986). Those items which exhibit a high polarization or dichotimization of attitudes (for instance, a large proportion of equally "very favorable" and "very unfavorable" attitudes) are selected for inclusion in future revision of the survey instrument. Those items which show approximately equal dispersion of attitudes across the board, on the other hand, are discarded as useless and would be excluded in future revisions of the instrument.

Collection of Data

The instrument for assessing the self-perceptions of teachers was sent to the stratified sample of teachers on the Career Ladder and those not on the Ladder. A cover

letter was sent to the teachers explaining the need, purpose and importance of the study. The method for returning the completed questionnaire was included. A coded number, keyed to the employee identification number, was placed on each questionnaire to facilitate the follow-up procedures and analysis of data. Follow-up letters were sent to the subjects within two weeks of the first mailing to all those who had not returned it. Final analysis was conducted on an overall return rate of 40%.

Projecting, Managing, Connecting and Professionalizing Impact on Student Achievement

In order to establish the value of an instrument designed to assess the concepts mentioned in the focus areas and the categories in which the questions were grouped, it would be necessary to determine if the concepts or required behaviors had any impact on student achievement gains. Thus, the impetus for the development of an instrument that potentially links specific behaviors to student achievement is strengthened when data is provided that shows a group of behaviors positively impacting student achievement gains.

When the average scores of students over a two-year period were analyzed and comparisons were drawn between students of teacher participants and students of non-participants and the overall district average, the following average NCE scores across grade level in Reading, Math and Language were realized in grades 3, 4 and 5:

AVERAGE NCE SCORES GRADES 3, 4 & 5

	MATH	READING	LANGUAGE
Career Ladder Participant	49.32	48.24	56.12
Non-Career Ladder	42.89	44.32	47.58
Total District Average 86-87 and 87-88	47.58	46.50	51.18

Results showing educationally significant differences due to teacher behavior (organizational cues plus attitude) can now take us to another level; that is, a level of looking at, through a reliable instrument, the specific combinations of behaviors that resulted in the greatest impact. The hopeful journey for developing and refining such an instrument is the foundation for this paper.

Data Analysis and Interpretation

Rationale for Factor Analysis

The purpose of applying factor-analytic procedures to the 12 sub-sections of the Self-Perception Characteristics Survey was to condense the individual ideas expressed in the separate questions into the key constructs which they represent. As such, the technique represents both a cross-check on validity of the content domains being measured and an attempt to be parsimonious in their identification.

According to Dillon and Goldstein (1984), "Factor analysis attempts to simplify complex and diverse relationships that exist among a set of observed variables by uncovering common dimensions or factors that link together the seemingly unrelated variables, and consequently provides insight into the underlying structure of the data. For example, the common underlying dimension of *social class* may account for the strong positive correlation frequently found between income, education and occupation." These authors go on to point out that "...by factor analysis we mean the study of interrelationships among the variables in an effort to find a new set of variables, fewer in number than the original set of variables, which express that which is *common* among the original variables." (italics in original text) This data reduction is typically accomplished by creating linear composites of the original measures which possess maximally shared covariance.

Hair, Anderson and Tatham (1987) have also summarized the search for underlying structure in the data which is the hallmark of factor analysis. "The general purpose of

factor analysis is to find a way of condensing (summarizing) the information contained in a number of original variables into a smaller set of new composite dimensions (factors) with a minimum loss of information; that is, to search for and define the fundamental constructs or dimensions assumed to underlie the original variables."

Dillon and Goldstein have also characterized the original variables (individual questions or items of the respective sections of the Self-Perception Characteristics Survey) as being *reflective indicators* of the broader underlying constructs which they comprise and are designed to tap. These authors have characterized the primary goal of multivariate analysis as "explaining a lot with a little;" consequently, it would be most efficient and economical to be able to condense the separate, multiple measurements of the survey sub-sections into the main content sub-domains which they represent. This process is the subject of the following set of data analysis procedures.

As an initial step, a set of reliability measures for each sub-section of the Self-Perception Characteristics Survey will be presented. Reliability is often a surrogate and/or supplementary procedure used for assessing validity, since it measures the internal consistency of a set of multiple observable measures.

Secondly, several global outputs or indicators of factor-analytic procedures will be shown for each survey sub-section. These consist of two measures of appropriateness of factor analysis, as well as the number of extracted factors and total variance accounted for within each sub-section of the questionnaire.

Finally, the major emergent or salient factors for each broad concept area of the survey will be identified. These will be summarized in a diagram which depicts a paradigm of the key processes represented by the Self-Perception Characteristics Survey.

Reliability Assessment of Sub-Sections of Self-Perception Characteristics Survey

Each of the 12 distinct content areas of the questionnaire was evaluated for internal consistency of items by means of Cronbach's Alpha. This particular indicator of reliability

is most appropriate for items which are scaled other than dichotomously, such as the questions contained within the Self-Perception Characteristics Survey (consisting of seven ordered response options, ranging from "Almost Never" to "Always"). Cronbach's Alpha consists of a correlation coefficient of internal item consistency, which is the average of the correlations obtained from all possible splits of the items into two halves. Therefore, it is less subject to accidental periodicity or bias in question ordering, and thereby it is a more stable indicator of actual inter-item consistency (Hopkins and Stanley, 1981; Mueller, 1986).

Table 1 displays the Cronbach's Alpha results for each section of the Self-Perception Characteristics Survey. Since alpha is a correlation coefficient, values close to 1.00 represent increasing levels of inter-item consistency. Similarly, lower values of alpha (typically 0.60 to 0.70 is used as a minimally acceptable level) indicate that the individual terms "do not work well together" in tapping a common underlying construct; in essence, they may actually be measuring different things.

As shown in Table 1, only one section of the Self-Perception Characteristics Survey yielded an unacceptable value of reliability. This was Time Effectiveness, with a Cronbach's Alpha value of 0.5426. Two other sections resulted in borderline, but marginally acceptable, values of alpha. These were School Effectiveness (0.6435) and Self Assessment (0.6005). The remaining nine content areas possessed excellent internal consistency, with corresponding Cronbach's Alpha reliability coefficients ranging from the high 0.70's to the 0.90's. As indicated earlier, high reliability is interpreted as indirect evidence of validity, since it indicates that clusters of items have been assumed to "belong together" by survey respondents.

TABLE 1

Cronbach's Alpha Reliability Indices:
"Self-Perception Characteristics Survey"

Topic Area	Cronbach's Alpha Reliability Coefficient
Projecting:	
Setting Goals & Objectives	0.9149
Planning	0.8328
Making Decisions	0.8482
Managing:	
Student Assessment	0.7733
Self Assessment	0.6005
Time Effectiveness	0.5426
Connecting:	
Communicating	0.7781
Building & Maintaining Relationships	0.8252
Developing Other Staff	0.8778
Professionalizing:	
Demonstrating Commitment	0.8430
Improving Instruction	0.8181
School Effectiveness	0.6435

Appropriateness of Factor-Analytic Procedures:
Global Quantitative Measures

Before proceeding to assess validity more directly by subjecting each of the survey sub-sections to a factor analysis, it is first necessary to determine whether or not there is sufficient shared covariance among the items to warrant application of the procedure in the first place. Two measures are available for this purpose. The first of these is the Kaiser-Meyer-Olkin (K-M-O) Index of Sampling Adequacy. Although the K-M-O Index is not directly statistically testable, it too is interpretable somewhat as a correlation coefficient and serves as a convenient thumbnail measure of the appropriateness of factor-analytic procedures. Values of 0.60 to 1.00 are indicative of sufficient levels of shared covariance to warrant proceeding with factor analysis (Norusis, 1985).

Table 2 lists the obtained values of the K-M-O Index for each sub-section of the Self-Perception Characteristics Survey. Time Effectiveness yielded a value of 0.55898, corroborating its unacceptable Cronbach's Alpha reliability coefficient. Self Assessment and School Effectiveness also resulted in low K-M-O- values: 0.52742 and 0.53015, respectively. The remaining nine content areas of the Self-Perception Characteristics Survey had acceptable-to-excellent values of the K-M-O Index, as can be seen in the first column of Table 2.

TABLE 2

Statistical Indices of Appropriateness of
Factor-Analytic Procedures:
"Self-Perception Characteristics Survey"

Topic Areas	K-M-O Index	Bartlett's Test of Sphericity Chi-Square	Associated p-value
Projecting:			
Setting Goals & Objectives	0.84449	215.20287	0.00000
Planning	0.68234	143.19262	0.00000
Making Decisions & Solving Problems	0.70824	133.81325	0.00000
Managing:			
Student Assessment	0.62142	109.89159	0.00000
Self Assessment	0.52742	66.64062	0.01966
Time Effectiveness	0.55898	57.39283	0.10178
Connecting:			
Communicating	0.64016	97.89048	0.00001
Building & Maintaining Relationships	0.70176	103.18283	0.00000
Developing Other Staff	0.74386	156.07935	0.00000
Professionalizing:			
Demonstrating Commitment	0.67967	125.86905	0.00000
Improving Instruction	0.69678	123.93085	0.00000
School Effectiveness	0.53015	90.36245	0.00007

However, a second, even more dependable measure of the appropriateness of factor-analytic procedures is available. It is known as Bartlett's Test of Sphericity and is distributed as a chi-square test statistic. The null hypothesis states that the off-diagonal elements of the variance-covariance matrix of the responses to the set of items comprising

each sub-section are essentially zero; that is, there is virtually no shared covariance. Thus, rejection of the null hypothesis ("large" values of Bartlett's chi-square, with correspondingly low p-values) implies that there is sufficient shared covariance among at least some of the items to justify application of a data-reduction validation procedure such as factor analysis (Dillon and Goldstein, 1984).

Table 2 also displays the Bartlett's Test of Sphericity chi-square equivalents and associated p-values in columns 2 and 3, respectively. Using a predetermined alpha value of 0.05 as a cutoff for significance, it can be seen that only Time Effectiveness resulted in an unacceptable value. In other words, with a chi-square equivalent of 57.39283 and an associated p-value of 0.10178, one cannot reject the possibility that the actual shared covariation among the items comprising this sub-section is zero. These results essentially cross-validate the low values of Cronbach's Alpha and the K-M-O Index. As a result, the Time Effectiveness section will not be factor-analyzed. The Bartlett's chi-square results for the remaining 11 sections of the Self-Perception Characteristics Survey all indicated sufficient levels of shared inter-item covariation to justify the application of factor-analytic procedures.

Specific Factor Analysis Results: Self-Perception Characteristics Survey

As explained earlier, the objective of factor analysis is to discover the underlying structure of a set of data, or multiple responses which are presumed to tap some broader, unobservable construct. The technique attempts to calculate linear combinations of the original variables, such that the variance-covariance matrix of the responses is "adequately" reproduced (e.g., to within a pre-set margin of error).

Before proceeding to the individual sets of eleven results, it is worthwhile to look at some other summary measures of the factor-analysis procedure. A number of alternative approaches exist with regard to the decision of "how many factors to retain." (The reader is referred to the 1984 text written by Dillon and Goldstein for an excellent and thorough

discussion of the relative advantages and drawbacks of each decision criterion.) However, a customary rule of thumb is to keep extracting factors until a certain minimum percentage of the total variance in the data set has been accounted for. With potentially as many extractable factors as the total number of items in each survey section (e.g., each item tapping a unique sub-construct), the key is to explain a hefty percentage of total variance with only a handful of extracted factors.

Table 3 clearly shows that all 11 survey sub-sections were parsimoniously "factorable" in this regard. In all cases over 75% of total variance was accounted for by five or fewer factors. The area of Improving Instruction was clustered into just five factors, which in total accounted for 85.7% of response variance within that particular sub-section. In like manner, 80.9% of the variance in the area of Setting Goals & Objectives was explained with just three factors. The other nine areas are similarly interpretable and indicative of outstanding results with respect to data reduction.

Factor-analysis results for the 11 sub-sections of the Self-Perception Characteristics Survey which had robust values of Bartlett's chi-square will be summarized in the sections to follow. Complete sets of results appear in Appendix A. These tables show the loadings, or correlations of each item to the factors. Only those items with loadings greater than or equal to 0.50 in absolute value are assumed to be significant and thus retained for interpretive purposes (Hair, Anderson, and Tatham, 1986). In addition, 10 of the 11 factor solutions which have been presented for interpretive purposes consist of the unrotated solution. The variety of rotation schemes which exist have as their objective the attainment of Thurstone's "simple structure," in which one (or, at most, a handful) of items loads on each extracted factor. The main argument customarily proposed in favor of such rotated solutions is that they are more readily conceptually interpretable. However, opponents counter that the large number of rotation methods essentially renders the ultimate solution *arbitrary* in nature. Since the unrotated derived factor loadings for the first 10 subscales turned out to be readily interpretable in terms of the underlying concepts contained within

the Perception Assessment Scale Survey, they will be presented in Appendix A and in the summary narrative results to follow. The "School Effectiveness" subscale was subjected to a varimax rotation, which is technically the most preferred of all rotation schemes, since it has as its primary objective simplifying the columns or factors to "simple structure."

TABLE 3

Number of Extracted Factors & Total Variance Accounted For:
"Self-Perception Characteristics Survey"

Topic Area	Number of Extracted Factors	Total Percentage of Variance Accounted For
Projecting:		
Setting Goals & Objectives	3	80.9
Planning	4	80.7
Making Decisions & Solving Problems	4	78.2
Managing:		
Student Assessment	5	82.6
Self Assessment	5	78.8
Time Effectiveness	5	81.6
Connecting:		
Communicating	5	80.4
Building & Maintaining Relationships	5	81.2
Developing Other Staff	4	83.0
Professionalizing:		
Demonstrating Commitment	4	75.1
Improving Instruction	5	85.7
School Effectiveness	5	81.7

Projecting: Goal Setting. Factor analysis of the Goal Setting sub-scale yielded three factors. (The third of these contained a repeat of items; thus, it is redundant to the other two, which is not uncommon.)

As can be seen from the first table in Appendix A, the nine items which comprise the first factor have to do with various aspects of goals and objectives. These include their

proper formulation (Item 1); their congruence with long-range objectives (Item 92); their accurate communication (Item 91); and their measurability (Item 3). Item 31, which loads highly on the first two factors, measures the extent to which goals and objectives are developed with adequate input from all affected individuals and groups. As a result, these factors may be thought of as representing the construct of *quality standard-setting*.

Projecting: Planning. This section of the Self-Perception Characteristics Survey resulted in three interpretable factors. The first dimension contained such aspects of the planning process as prior budgeting of adequate time (Item 63) and needed resources (Item 4), as well as basing decisions on adequate information (Item 5). Providing the necessary follow-through was also an important aspect of this factor (Item 64). Interestingly enough, the dangers of over-planning also clustered with the foregoing questions.

The second extracted planning dimension contained a high negative loading for Item 95, which loaded with a positive sign for Factor 1. Thus, the opposite of its originally worded content is attributable to the second dimension: that is, some aspects of the planning process do take care of themselves and therefore do not require constant attention. The remaining two items dealt with the overall quality and acceptability of the plan (Item 34) and its realism for attainment (Item 65).

Factors 1 and 2 would imply a natural limit to the planning process. In other words, too much planning and/or over-controlling could very well jeopardize the plan's successful realization, in terms of needlessly squandering scarce time and other resources.

The third factor dealt with two aspects of the interpersonal input into the planning process. Item 94, which concerned the desire to seek active input from other affected parties with respect to planning, loaded highly on both the first and third derived dimensions. The other question dealt with keeping adequate track of the planning activities of one's staff (Item 93).

To summarize, there was repeated loading of items which covered various aspects of meaningful input into planning tasks by all affected parties. therefore, these factors may be thought of as tapping significant facets of *participative planning*.

Projecting: Decision Making. Of the four dimensions which were extracted within this concept area, only the first two were non-redundant and therefore substantively interpretable. Thus, parsimony in data reduction was attained especially well in this area.

Several key aspects of Factor 1 dealt with appropriate personal input. The most highly loading questions concerned using established criteria (Item 36); implementing decisions effectively (Item 38); and ultimately selecting the course of action which was most likely to produce the desired results (Item 67), particularly after careful consideration of all possible alternatives (Item 7). It was also important to evaluate these choices on their true intrinsic merit, rather than the source who happened to propose them (Item 37). Other salient aspects were obtaining appropriate input from individuals and groups, as well as encouraging creative approaches to problem solving. The second factor consisted solely of Item 6, or the need to work systematically on those aspects of the decision which impact the progress of the entire organization.

The preceding factor analysis may be characterized as embodying a *holistic approach to the decision-making process*. Specifically, the underlying concepts which need to be in balance in order for sound decisions to be made, are: Soliciting input from *careful preparation* or *"doing one's homework"*; *soliciting input from others*; and *effective troubleshooting in identifying and solving potential problems*.

Managing: Student Assessment. Three of the five factors extracted within this section were substantively interpretable. The first dimension was comprised primarily of ongoing monitoring and feedback activities (Items 14, 44, 72, 12, and 73). In addition, the most highly loading question dealt with assuring that the goals for one's teaching units are met (Item 102).

However, considerable ambivalence seems to exist on how much student feedback to students is desirable. This is evidenced by the robust negative loading for Item 12 ("provide feedback to students") on the second dimension.

In addition, setting the "proper" difficulty level of student objectives is a distinct trouble spot for respondents. Factor 3 consisted solely of the negative of Item 72, indicating that perhaps the expectations being set for students are too unrealistic.

The breakdown of the student assessment area clearly reflects some uncertainty over *balancing ambitious goal-setting with the proper dose of realism*. There is also concern about the true value of indiscriminately providing larger and larger amounts of feedback to students about their performance: that is, "more is not necessarily preferable to less."

Managing: Self Assessment. The first emergent factor within this sub-section reflected the extent to which "on-paper" evaluation processes were actually followed up by tangible actions. Item 39, which dealt with making prompt, clear and rational decisions based upon the evaluation process, and Item 98, which reflected the extent to which one's activities generally are modified as a consequence of evaluation results, loaded highly on this first factor. Thus it may be thought of as an *action-oriented evaluation* dimension.

At the same time, there exists considerable ambivalence about the degree to which earnings should be tied directly to the evaluation process. Item 100, which measures the respondents' "comfort level" with the impact of evaluations on earnings, loaded positively on Factor 1 and negatively on Factor 3.

The second extracted dimension represented an unusual "mix" of aspects of self-involvement in the evaluation process. The highest-loading question on this dimension was Item 70, which assessed respondents' willingness to take responsibility for various aspects of their own evaluation. However, the other key component of this factor was the negative of Item 10, or a reluctance to seek and discuss suggestions openly and calmly in time of crisis. There appears to be a recognition that accepting a more active role in one's

own evaluation process can indeed be a double-edged sword. On the one hand, such hands-on direct involvement may be perceived as intrinsically satisfying and allowing for more control in one's evaluation outcomes. However, this may also be accompanied by the inevitable stresses and ambiguities that often accompany acceptance of additional responsibilities.

The final key emergent conceptual aspect of self assessment is a clear desire for *greater quality in the evaluation process*. Specifically, this is reflected by Item 39 ("make prompt, clear decisions"), which loaded highly on two of the four interpretable factors.

Connecting: Communicating. Five dimensions were extracted in this concept area. Three of them were interpretable.

All three of these factors reflected concern over the *effectiveness of "top - down" and "bottom-up" (multi-directional)* channels of communication within *the organizational structure*. A second, equally salient issue dealt with the *level of clarity of the information being communicated.*

The first dimension was predominantly composed of the effectiveness of communication efforts between superiors and subordinates (Item 17), as well as whether existing communication was open and free-flowing in nature (Item 18). The importance of communicating the broad "mission," or long-range purpose, of the organization, was also evident (Item 49). In addition, importance was placed upon the *medium of the message* itself; that is, using appropriate language, visual aids and other handouts in presentations, for example (Item 48).

However, *these admirable goals of clarity and effective multi-level channels of communication* were tempered with a *dissatisfaction with their present levels* as experienced by the respondents. The second dimension was comprised of the negative of Item 17; in other words, a distinct lack of effectiveness. Similarly, the third dimension consisted of the negatives of Item 48 ("lack of clarity") and Item 47 ("a lack of assessment of, and appropriate reaction to, verbal and non-verbal cues"). Therefore, the desire to

improve communication clarity and directionality has evidently been hampered by a frustrating increase in "*mixed signals*," or garbled communication.

Connecting: Building and Maintaining Relationships. Repeat items within the four extracted dimensions all pointed to a sense of *cooperation* and the *intrinsic value of positive reinforcement* in interpersonal relationships. Cooperative team-building (Item 51); recognition for positive contributions of staff members (Item 81); effective management of peer conflict (Item 110); overt attention paid to non-task-centered teacher needs (Item 20); and showing that one values people (Item 21) were key underlying themes.

Connecting: Developing Other Staff. As with several previous concept areas, factor analysis of this particular section of the Self-Perception Characteristics Survey revealed a concern over maintaining a *proper balance of focus* in activities. That is, there was a clear recognition that staff development had to be optimally integrated with expenditures of time, effort and resources on other organizational goals. While in theory it might be tempting to focus on one to the exclusion of the other, in the long run a balance of attention to these multiple objectives was desirable.

Factor 1, in fact, narrowed in on this *need to integrate individual and task-oriented organizational objectives* successfully. The first few highly loading questions acknowledged the school's responsibility for developing its staff (Items 60, 88, 28, 118, 119, 29, and 58). However, the remainder of this dimension dealt with the necessity of carefully coordinating the professional development of staff members with the other, task-centered goals of the school (Items 30 and 59).

The fact is that individual and other organizational needs do not always "mesh" cleanly; in other words, some tough and unpopular choices may sometimes need to be made in terms of resource allocation. There may be a limit in terms of the school's ability to develop its "human resources," in the face of other objectives such as curriculum alignment and improvement of student achievement. This conflict is well depicted in the composition of the remaining two factors. Factor 2 was comprised of the negatives of

Items 30 and 29, thereby indicating that organizational and staff development goals may not always be congruent, as well as the fact that superiors may be severely limited in the time that they have available for staff-development activities. (The latter point is reiterated in the sole question which loaded negatively on Factor 3, or Item 119.) "Best intentions" notwithstanding, there are natural limits to the extent of hands-on assistance which can be feasibly provided by the organization to its staff.

Professionalizing: Demonstrating Commitment. A similar balancing-act issue emerged with respect to outside involvement in professional development activities. The first derived dimension highlighted the desirability of volunteering for extra duties which would benefit organizational goal attainment (Item 114); overtly demonstrating a commitment to quality education (Item 55); playing an active role in school-sponsored special events (Item 24); and devoting time and effort to school-community partnership activities (Item 23), among others. These concepts imply a need to "go the extra mile," or to "put your money where you mouth is," regarding active involvement in such desirable goal-oriented activities - as opposed to mere "lip-service" concerning such activities.

This need for an active involvement is nicely supported by the "*professionalism*" dimension which was the second extracted factor. Two aspects of professionalism were salient: the need to model appropriate behavior (Item 83) and the focus on providing support to the organization in its goal orientation (Item 84).

However, as with other resource-allocation decisions, respondents recognized that there is a natural limit to their total available time and energy for such inherently desirable outside activities. The final factor consisted of high negative loadings for Items 24 and 23 ("no time and effort available," and "don't play an active role," respectively).

Professionalizing: Improving Instruction. In the specific area of teacher-development activities, the aforementioned "trade-off" took the form of a desire to keep current, along with a recognition that unlimited time, energy and other resources were simply not available. The first extracted factor acknowledged the inherent desirability of

incorporating innovative teaching techniques, curriculum development, and periodic, objective review of the skills of one's staff. Similarly, Factor 3 consisted solely of Item 85, which measured the subjects' willingness to serve student needs more adequately by engaging in staff development activities.

However, as before, this laudable focus on instructional improvement is tempered with the realization that such goals compete with other objectives within the time, energy and monetary constraints of organizational members. This trade-off is effectively depicted in Factor 2. On the one hand, it reiterates the need to establish an optimum learning environment (Item 87). This is counterbalanced by negative loadings for Items 115 and 117, which imply that periodic internal review and supplementary support services require expenditure of organizational resources.

Professionalizing: School Effectiveness. This sub-section of the Self-Perception Characteristics Survey revealed an interesting mix of key concept areas. The first derived dimension consisted of Item 120 ("test results should be used to effect change"); Item 112 ("test results should be used to identify program strengths and weaknesses"); and Item 41 ("schools should accept responsibility for teaching basic skills development"). Additionally, the fifth factor comprised Item 52 ("emphasize academics"). Taken in tandem, two ideas are prominent in these factors. There is an obvious desire for a *"back-to-basics," academic skills focus* within curricula. Secondly, there is a belief that *test results should serve as a catalyst for change.*

This *concern for content* is enhanced by a *complementary focus upon developing student potential.* Two such questions loaded highly on Factor 2: Item 101 ("believe all students can learn") and Item 90 ("high teacher expectations for all students").

Factor 3 underscores this emphasis on potential with a quality foundation to all such activities. It consisted of Item 71 ("take full responsibility for all students"), as well as Item 82 ("all school standards should be equally enforced").

Interestingly enough, however, there is a *lack of agreement on the proper amount of "hands-on involvement" which the principal should have* in such day-to-day classroom activities. This dilemma is evidenced by the loading of Item 22 ("principal should get actively involved") with a negative sign on Factor 2, and Item 11 ("principal should be in the classroom") with a positive sign on Factor 4.

Factor Analysis of An Overview of the "Self-Perception Characteristics Survey"

A number of key underlying themes were evident from the factor analysis of the 11 sub-sections of the Self-Perception Characteristics Survey. These have been conveniently summarized in Table 4 and matched to the broader content domains to which they refer.

As can be noted from Table 4, the construct of Projecting can be broken down into a number of critical aspects of planning, goal setting and decision making. Ideally *standards should be formulated and implemented with adequate and high-quality input from all affected levels of the organizational hierarchy*; that is, the concept of *participative planning and decision making*. Additionally, the planning process itself should be well-thought-out and structured in advance; a *"planning for planning" process* is warranted. On the other hand, too much planning can be just as detrimental to optimal organizational standard setting as too little. *Successful plans* are those which are *based upon a proper balance of structure and detail.*

The evaluation process of students and staff was the central focus of the Managing section. Evaluations need to be *action-based*, rather than being reduced to mere organizational rituals consisting of paper shuffling. The *proper difficulty level of goals for students and staff* needs to be carefully set. There needs to be in place an *accepted established mechanism for resolving disagreement* and conflict which may arise. *Rewards* should be unambiguously and equitably *linked to evaluation results*. Along the lines of sharing feedback with students, there was a recognition of the *dangers of "information*

overload" and/or too much specificity, which could turn out to be overwhelming instead of helpful.

Interpersonal interaction was disaggregated into its underlying components within the general area entitled Connecting. *High-quality channels of communication* need to be clear and *multi-level* in nature; that is *"bottom-up" as well as "top-down."* Dissatisfactions were perceived with regard to *purely authoritarian channels of communication*, as well as *information transmission which was incomplete and/or garbled in nature ("mixed signals").* In the area of staff relationships, *cooperation* emerged as a key underlying theme. However, natural limitations were recognized with regard to individuals' ability to work on improving interpersonal and staff-development activities. In other words, *a proper balance needs to be established between staff development and other organizational goals.*

The same issue of balance was evident in the factor-analytic breakdown of Professionalizing. While teacher involvement in outside activities such as working on school-community partnership activities is indeed necessary and desirable, there is an inevitable *trade-off* which emerges *between commitment to outside activities and other organizational goals.* Similarly, there should be a careful *balance with regard to teachers' self-improvement instructional activities*, such as learning new techniques which can be translated into *innovative methods of teaching.* Along the lines of content, there was a dual concern regarding a return to *a "back-to-basics" (emphasis on academic skills) in the curriculum*, as well as a parallel focus on *developing individual students' potentials for learning.* Respondents also perceived an ambiguity regarding the *"proper" extent of hands-on involvement of the building principal in day-to-day classroom activities.* It could be that while a certain level of structured guidance is experienced as reassuring, too much "over-the-shoulder" behavior is seen as constricting and/or overly authoritarian. Finally, it was hoped that *standardized test results would serve as catalysts for positive organizational*

TABLE 4

Key Emergent Factors:
"Self-Perception Characteristics Survey"

Topic Area	Salient Factors
Projecting:	
Setting Goals & Objectives	*High quality standard setting *Adequate input at all levels
Planning	*"Planning for Planning" *Proper balance of structure & detail (Don't over-plan) *Participative planning
Making Decisions & Solving Problems	*High quality decision making *Adequate input at all levels *"Troubleshooting / doing your homework" *Holistic (system-wide) approach to decision making
Managing:	
Student Assessment	*Concern over sharing feedback with students *Concern over proper difficulty level of expectations
Self Assessment	*Concern over tying evaluation to earnings *High quality evaluation process *"Action-oriented evaluation" *Conflict resolution
Connecting:	
Communicating	*Concern over effectiveness of "Top-Down vs. Bottom-Up" channels of communication *Concern over degree of clarity of communication ("Missed Signals")
Building & Maintaining Relationships	*High quality cooperation *Concern over proper balance between positive personal reinforcement & necessary task orientation
Developing Other Staff	*Concern over proper balance between staff development & other organizational goals (extent of "hands-on assistance" & required time commitment)
Professionalizing:	
Demonstrating Commitment	*Balance between active involvement in tangible activities & necessary time, effort & energy to get involved (vs. mere "lip service" to commitment)
Improving Instruction	*Balance between need for innovation in meeting student needs, & need for periodic review, with necessary time, effort & energy required to "keep current"
School Effectiveness	*Use test results as catalysts for change *Teacher focus on individual student potentials ("Multiple targets") *"Back-to-Basics" (stress academics) *Conflict over extent of principal's involvement in day-to-day classroom activities

change, as opposed to being utilized as "weapons" which foster dysfunctional comparisons and competitiveness, for instance.

One final point needs to be made in the summary of factor analysis results. It will be recalled that the sub-scale of Time Effectiveness could not be factor-analyzed as a separate, distinct content sub-domain. This was because it resulted in unacceptably low values of Cronbach's Alpha, the K-M-O Index of Sampling Adequacy, and Bartlett's Chi-Square Test of Sphericity.

Given the preceding results for the remaining 11 sub-sections of the Self-Perception Characteristics Survey, a plausible explanation can be offered. A number of these other constructs yielded underlying "concern-over-balance" issues, such as the proper trade-off between involvement in staff-development, interpersonal and school-community partnership activities with other organizational goals. Such a trade-off involves decisions which must be made regarding how to allocate scarce organizational resources optimally among competing alternative courses of action. Since one such prominent scarce resource is time, it seems that the construct of Time Commitment actually permeated a number of the other constructs, instead of being strictly orthogonal (independent). This intercorrelation with the other constructs would explain why the cluster of items comprising Time Commitment was not separately factorable.

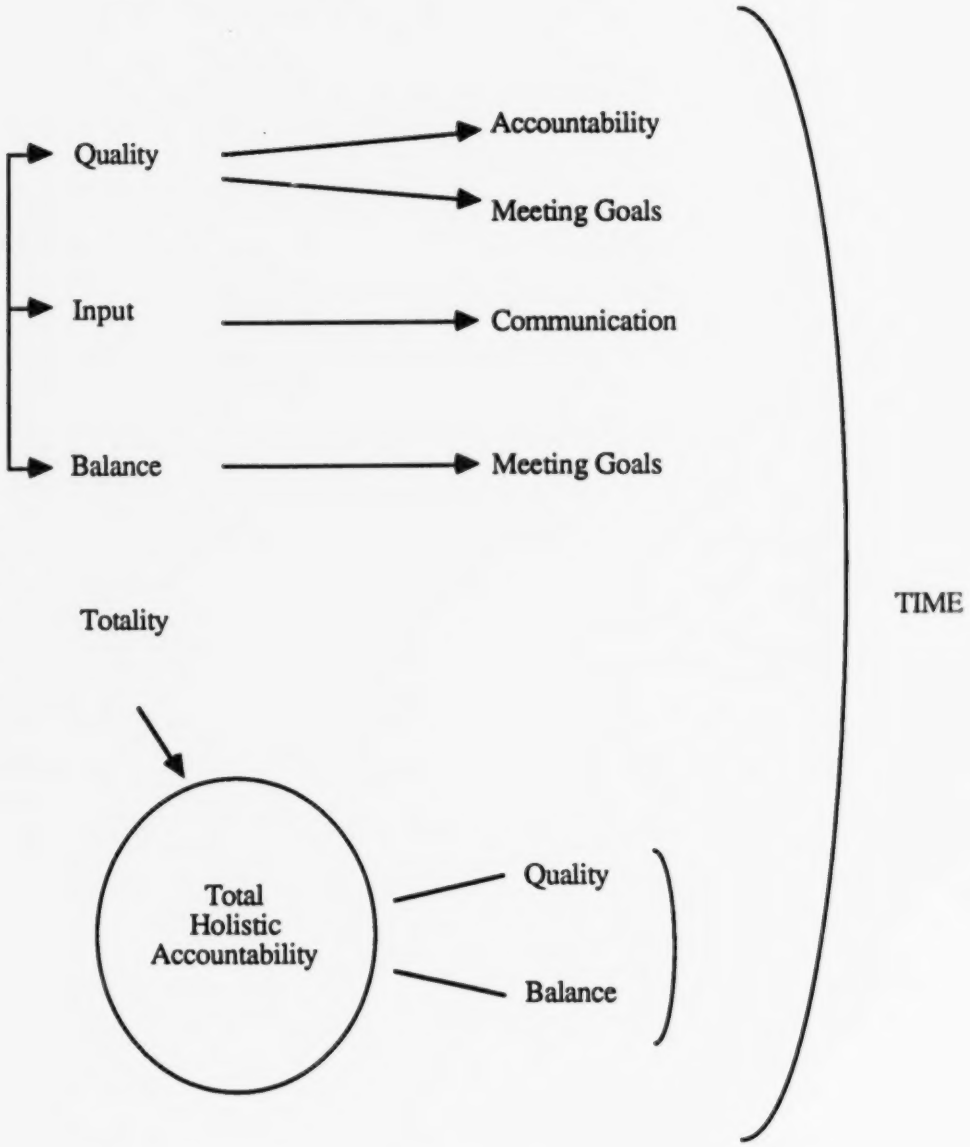
Summary: A Model of the Major Factors Which Underlie Key Educational Organizational Process

The foregoing factors represent some common dominant themes in terms of organizational functioning. These have been depicted in the general paradigm shown in Figure 1.

All organizational structures, in both the public and private sectors, are *goal-oriented.* Members of the organizational entity come together and interact for the express purpose of attaining certain jointly set, agreed-upon objectives. For an educational

FIGURE 1

Summary of Major Factors:
"Self-Perception Characteristics Survey"



organization such as a district or school, these goals include improved teacher performance and related increases in student achievement. The basic premise is that members of the

organization, acting in harmony, have a better chance of attaining these goals than if they act individually and in isolation.

Given such a diversity of members in terms of backgrounds, skills, interests and ability levels, proper division of labor and coordination of individual efforts is essential. Clear and multi-directional channels of *communication* are vital to this effort at goal-directed organizational orchestration. This means, for instance, that there must be a complete, accurate and unrestricted flow of information among administrators, teachers, support staff and students in order for the broad objectives of student learning to be attained.

In addition, optimal coordination of diverse members is enhanced by systematically *seeking input from all levels into organizational goals and decisions*. For one thing, organizational psychology has repeatedly shown that "people tend to support that which they help create." For another, innovation is encouraged by actively incorporating a wide variety of viewpoints.

The effective organization will naturally want to set the *highest-quality objectives* possible. In like manner, delegation of duties and responsibilities aimed at goal attainment should theoretically be maximally comprehensive and focused. It would not be surprising to hear a district superintendent wish for "record levels of student achievement" for the upcoming school year. The likelihood of reaching such a lofty, and admirable, goal would of course be considerably enhanced if every teacher within that district took advantage of all possible existing inservice, staff development and instructional improvement opportunities, and if he or she incorporated the entire menu of the latest innovations in teaching techniques.

However, there is an inherent limit to the ability of any organization to keep increasing the quality of its goals and implementation efforts, which is at the heart of microeconomic theory. That is the problem of *trade-off analysis*, or deciding how to *allocate a limited amount of scarce economic resources among competing alternatives*. A

school district has a limited total amount of dollars to spend. Similarly, a teacher in that school district has a limited amount of time and energy to invest in various activities. If more money is spent on instructional inservice, less money becomes available for new classroom materials. In like manner, an already overworked teacher may have no time to spare for outside school-community activities, needing instead to spend evenings and weekends on grading papers or preparing upcoming lessons. The tough and painful choices which are necessitated by a limited total amount of organizational resources mean that a *balance* needs to be established *between quality and practicality.*

Organizational leaders who are aware of this balance will make wiser goal-oriented operating decisions. They will carefully trade off availability against costs in the process of arriving at the best possible, yet realistically attainable, goals for themselves and their subordinates. As a result, objectives are more likely to be successfully reached, with a minimum of "negative side effects" in terms of wasted financial and human resources. By doing so, these organizational leaders optimally fulfill their responsibilities to the providers of these resources (being in the case of educational organizations, the tax-paying public) to utilize these scarce resources in ways in which they will do the greatest possible good. This is known as the *accountability function.*

The paradigm shown in Figure 1 depicts all of the foregoing elements, constraints and goals in relationship to one another. When these aspects of organizational functioning are considered in an integrative or *holistic* sense (bottom left-hand portion of Figure 1), *the proper balance of quality and realistic expenditure of scarce resources* can be successfully attained by the organizational entity.

Summary Conclusions

Researchers and practitioners have demonstrated the advantages of collaborating on reforming educational systems through the assessment and re-structuring of schools and in cooperatively building and validating the connection between teacher characteristics and

how their classroom performance directly relates to the product objectives of student achievement. The scientific and technological rigor of developing evaluation instrumentation at the school site and applying the most advanced procedures of factor analysis and validation are seldom achieved in educational settings. The researchers have realized the rich advantages of professors and practitioners collaborating on building the model of essential teaching and classroom management skills. Such cooperative efforts will provide much more relevant knowledge to understand and improve the complexities within which educational systems operate.

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APPENDIX A

Factor Loadings:

Perception Assessment Scale Survey

Projecting: Goal Setting

Factor	Item Number	Item Content	Factor Loading
1	1	To what extent do I assure teaching goals and objectives are developed.	0.87156
	92	To what extent do I assure objectives speak to all major goals.	0.86231
	91	To what extent do I encourage the dissemination of established goals and objectives.	0.84607
	3	To what extent do I encourage setting objectives which are stated in concrete, measurable, or observable terms.	0.82548
	2	To what extent do I assure short-term teaching objectives contribute to long-range goals.	0.80867
	32	To what extent do I develop and prioritize goals and objectives using well-conceived procedures.	0.76850
	61	To what extent do I initiate activities which accomplish school goals and objectives.	0.70227
	33	To what extent do I actively and effectively marshal support for goals and objectives.	0.60295
	31	To what extent do I develop objectives with input from appropriate individuals and groups.	0.60284
2	31	To what extent do I develop objectives with input from appropriate individuals and groups.	0.67391

Projecting: Planning

Factor	Item Number	Item Content	Factor Loading
1	63	To what extent do I devote appropriate time and effort to planning.	0.81218
	4	To what extent do I anticipate the need for resources to carry out plans.	0.81132
	64	To what extent do I follow through on necessary tasks once goals are determined.	0.67716
	5	To what extent do I secure sufficient information upon which to base plans.	0.67415
	35	To what extent do I plan sufficiently but not over-plan.	0.65367
	95	To what extent do I recognize things need attention and don't always take care of themselves.	0.53388
	34	To what extent do I consider both the quality and the acceptability of a plan as I develop it.	0.57544
	94	To what extent do I seek relevant input from others in the planning process.	0.50809
2	95	To what extent do I recognize things need attention and don't always take care of themselves.	-0.50798
	34	To what extent do I consider both the quality and the acceptability of a plan as I develop it.	0.66013
	65	To what extent do I make realistic estimates of the time and resources needed to get things done.	0.64254
3	93	To what extent do I keep track of other staff planning efforts.	0.87833
	94	To what extent do I seek relevant input from others in the planning process.	0.76385

Projecting: Decision Making

Factor	Item Number	Item Content	Factor Loading
1	36	To what extent do I make decisions based on established criteria.	0.81749
	38	To what extent do I implement agreed-on decisions effectively.	0.79464
	67	To what extent do I choose the course of action that will best lead to desired results.	0.77808
	97	To what extent do I identify the causes of problems through collections and analysis of pertinent information.	0.69580
	37	To what extent do I evaluate suggestions on their merit rather than on the basis of who the ideas come from.	0.57471
	66	To what extent do I use creative approaches to solving problems.	0.54864
	7	To what extent do I identify several tentative solutions to problems before selecting one to act on.	0.53390
2	6	To what extent do I work systematically on factors which affect the progress of the total organization.	0.54905

Managing: Student Assessment

Factor	Item Number	Item Content	Factor Loading
1	102	To what extent do I assure that established goals for my teaching units are met.	0.70776
	14	To what extent do I see that student progress is assessed regularly.	0.66596
	44	To what extent do I actively seek feedback about my students' performance.	0.63324
	72	To what extent do I hold realistic expectations for what the students I am responsible for should accomplish.	0.59272
	12	To what extent do I give students concrete feedback about their performance.	0.58922
	73	To what extent do I see that the evaluation of students takes place regularly.	0.55441
	103	To what extent do I talk to students in my class about their performance when things go right, as well as when things go wrong.	0.53611
	13	To what extent do I see that students are reaching expected levels of accomplishments.	0.53132
2	12	To what extent do I give students concrete feedback about their performance.	-0.52486
	43	To what extent do I assure short-term results support long-term gains.	0.84146
	42	To what extent do I assure that my performance is reviewed and evaluated regularly.	0.62164
3	72	To what extent do I hold realistic expectations for what the students I am responsible for should accomplish.	-0.58552

Managing: Self Assessment

Factor	Item Number	Item Content	Factor Loading
1	98	To what extent do I modify objectives and activities based on information resulting from self evaluation efforts.	0.70329
	100	To what extent do I feel comfortable with an evaluation impacting career earnings.	0.64811
	39	To what extent do I make prompt, clear and rational decisions based on the information available.	0.61070
	99	To what extent do I seek feedback and suggestions about my own performance.	0.51824
2	9	To what extent do I seek resource alternatives inside and outside the school system when funds are needed.	0.70131
	70	To what extent do I take responsibility for the performance of the program I am responsible for.	-0.66791
3	100	To what extent do I feel comfortable with an evaluation impacting career earnings.	-0.51158
4	39	To what extent do I make prompt, clear and rational decisions based on the information available.	0.58609

Connecting: Communicating

Factor	Item Number	Item Content	Factor Loading
1	49	To what extent do I communicate the mission of the organization so that staff is inspired to work toward accomplishing the mission.	0.77134
	18	To what extent do I assure that communication within my part of the organization is open and flows freely.	0.73921
	48	To what extent do I give convincing presentations and speeches using language and media appropriate to the audience.	0.69808
	77	To what extent do I produce written communications which are clear.	0.64352
	107	To what extent do I use suggestions from others about ways to improve communication.	0.55982
	17	To what extent do I seek to establish effective two-way communication with administrators and teachers.	0.50438
2	17	To what extent do I seek to establish effective two-way communication with administrators and teachers.	-0.77108
3	48	To what extent do I give convincing presentations and speeches using language and media appropriate to the audience.	-0.58684
	47	To what extent do I assess and react appropriately to verbal and non-verbal cues.	-0.52665

Connecting: Building and Maintaining Relationships

Factor	Item Number	Item Content	Factor Loading
1	50	To what extent do I encourage cooperation rather than competition among staff.	0.81877
	51	To what extent do I build a cooperative work team among my peers.	0.75976
	109	To what extent do I actively work on establishing and maintaining trust.	0.68049
	111	To what extent do I establish effective relationships with the community.	0.64769
	79	To what extent do I adhere to rules and policies implemented by the organization.	0.63446
	110	To what extent do I manage conflict with peers effectively.	0.60711
	81	To what extent do I note, praise, and reward peoples' positive contributions.	0.58901
	21	To what extent do I behave in ways that show I value people.	0.53057
	20	To what extent do I give attention to other teacher needs without neglecting task accomplishment.	0.51971
2	51	To what extent do I build a cooperative work team among my peers.	-0.50091
	20	To what extent do I give attention to other teacher needs without neglecting task accomplishment.	0.50508
3	110	To what extent do I manage conflict with peers effectively.	0.54879
4	21	To what extent do I behave in ways that show I value people.	0.61323

Connecting: Developing Other Staff

Factor	Item Number	Item Content	Factor Loading
1	60	To what extent do I see staff growth as important to developing and maintaining an effective organization.	0.83108
	88	To what extent do I encourage ways for staff to share new skills and describe growth experiences.	0.80000
	28	To what extent do I show a strong interest in development of staff.	0.79269
	58	To what extent do I assist staff in planning their growth and development experiences.	0.75207
	30	To what extent do I help coordinate individual staff member's professional development objectives with the goals of the organization.	0.71180
	119	To what extent do I believe I am committed to assist peers with aspects of their performance that need strengthening.	0.70288
	29	To what extent do I help staff define their professional development needs and goals on both a scheduled and on an "as needed" basis.	0.68299
	59	To what extent do I view staff growth as important to developing and maintaining an effective organization.	0.62684
	118	To what extent do I take advantage of opportunities to turn peer mistakes into learning experiences.	0.57170
2	30	To what extent do I help coordinate individual staff member's professional development objectives with the goals of the organization.	-0.68049
	29	To what extent do I help staff define their professional development needs and goals on both a scheduled and on an "as needed" basis.	-0.56114
3	119	To what extent do I believe I am committed to assist peers with aspects of their performance that need strengthening.	-0.58905

Professionalizing: Demonstrating Commitment

Factor	Item Number	Item Content	Factor Loading
1	114	To what extent do I volunteer to do tasks that will strengthen the organization.	0.83761
	55	To what extent do I behave in ways that show commitment to quality education.	0.75937
	24	To what extent do I attend and, when appropriate, take an active role in school sponsored events.	0.69963
	23	To what extent do I devote time and effort to appropriate school-community activities.	0.69329
	25	To what extent do I actively seek opportunities to improve your knowledge and skills.	0.67436
	113	To what extent do I help out when special problems arise that require extra effort.	0.64370
	53	To what extent do I stand up for what's good for education.	0.58907
	84	To what extent do I support my organization appropriately.	0.56159
	54	To what extent do I devote time and effort to professional organizations.	0.53666
2	83	To what extent do I model the behavior I want to encourage in others as a way of improving their behavior.	0.65231
	84	To what extent do I support my organization appropriately.	0.58342
3	54	To what extent do I devote time and effort to professional organizations.	-0.55188
	53	To what extent do I stand up for what's good for education.	0.50551
4	24	To what extent do I attend and, when appropriate, take an active role in school sponsored events.	-0.55767
	23	To what extent do I devote time and effort to appropriate school-community activities.	-0.51956

Professionalizing: Improving Instruction

Factor	Item Number	Item Content	Factor Loading
1	26	To what extent do I initiate instructional improvement efforts based on educational research and proven methods.	0.79877
	56	To what extent do I encourage the use of new instructional techniques.	0.76269
	115	To what extent do I make appropriate efforts to provide resources for improving instruction.	0.71340
	117	To what extent do I regularly review instructional programs or activities to insure they meet student needs.	0.67641
	27	To what extent do I place a high priority on curriculum development activities.	0.61875
	57	To what extent do I actively assess staff's understanding of effective teaching and learning practices.	0.59477
2	117	To what extent do I regularly review instructional programs or activities to insure they meet student needs.	-0.58243
	115	To what extent do I make appropriate efforts to provide resources for improving instruction.	-0.56533
	87	To what extent do I work to establish a good learning environment for students.	0.54139
3	85	To what extent do I seek to enhance student growth by sharing opportunities with staff for gaining new skills.	0.77255

Professionalizing: School Effectiveness

Factor	Item Number	Item Content	Factor Loading
1	120	To what extent do I believe that test results should be used to bring about change.	0.87234
	112	To what extent do I believe that test results should be used to identify program strengths and weaknesses.	0.77814
	41	To what extent do I believe that schools should accept the responsibility for teaching basic skills.	0.68379
2	22	To what extent do I believe your principal should identify and diagnose instructional problems and offer alternative ways to teach.	-0.79271
	101	To what extent do I act and believe that all students can learn.	0.80923
	90	To what extent do I believe teachers should have high expectations for all students.	0.67469
3	71	To what extent do I take responsibility for all students, all of the time everywhere in your building.	0.82193
	82	To what extent do I believe standards of school and classroom conduct should be known and equally enforced.	0.80691
4	11	To what extent do I believe my principal should spend most of his/her time out in the school, usually in the classroom.	0.91991
5	52	To what extent do I believe the school should emphasize academic over all other activities.	0.93990